

Patent Claims:

1. Free-jet centrifuge (1) for cleaning the lubricating oil of an internal combustion engine, with a housing (10) which is closed by a removable cover (14), with a rotor (2) rotatably arranged in the housing (10) and with channels for feeding the pressurized lubricating oil to be cleaned and for removing the cleaned pressureless lubricating oil, the rotor (2) being of split design with, on the one hand, a drive part (3) having at least one recoil nozzle (34) and, on the other hand, a dirt trapping part (4) having a dirt collection area, with the drive part (3) able to be flowed through by a first partial lubricating oil flow and the dirt trapping part (4) by a second partial lubricating oil flow, with the drive part (3) and the dirt trapping part (4) being designed with positive-interaction torque transmission means (6) which are engageable by axially slipping on the dirt trapping part (4) onto the drive part (3) and disengageable by axially pulling off the dirt trapping part (4) from the drive part (3), with the dirt trapping part (4) being separable from the drive part (3) for disposal or cleaning, and with means provided or applied in the centrifuge (1) which, in the operation of the centrifuge (1), serve to prevent or restrict the axial mobility of the dirt trapping part (4) relative to the drive part

(3) and which are ineffective or detachable when the cover (14) is removed,

c h a r a c t e r i z e d i n t h a t

- the drive part (3) extends from the bottom towards the top into the dirt trapping part (4) or entirely through it;
- the drive part (3) comprises all parts serving for the rotatable bearing of the rotor (2); and that
- the drive part (3) is securely positioned against axial removal with opened cover (14).

2. Free-jet centrifuge according to claim 1, characterized in that the drive part (3) comprises a central tubular body (30) forming a lubricating oil channel and at least one nozzle bearing body (31) radially extending outward from the tubular body (30) with at least one oil branch channel (33) leading to the recoil nozzle/nozzles (34).
3. Free-jet centrifuge according to claim 2, characterized in that the nozzle bearing body (31) has the form of a double bottom in the interspace of which the oil branch channels (33) are formed.
4. Free-jet centrifuge according to claim 2, characterized in that the nozzle bearing body (31) has the form of a disk in which the oil branch channels (33) are formed.
5. Free-jet centrifuge according to claim 2, characterized in that the nozzle bearing body (31) is designed in the form of two or more tubular arms with one oil branch channel (33) each running through each arm.

6. Free-jet centrifuge according to any one of the claims 1 to 5, characterized in that the rotor (2) is positioned on an axis (5) forming one part of the housing (10), being rigidly or articulatedly attached on the remaining housing (10), said axis penetrating the rotor (2) and being detachably supported and centered with its upper end in the cover (14) placed on.
7. Free-jet centrifuge according to any one of the claims 1 to 5, characterized in that the rotor (2) is positioned on an axis (5) forming a rigid part of the housing (10), said axis extending into the rotor (2) and ending with its upper end at a distance to the cover (14) placed on.
8. Free-jet centrifuge according to any one of the claims 1 to 5, characterized in that the rotor (2) is arranged on bearings at the bottom and the top by means of one axis stub (5', 5'') each, with the axis stubs (5', 5'') being parts of the rotor (2) or parts of the housing (10) and its cover (14).
9. Free-jet centrifuge according to any one of the claims 1 to 8, characterized in that the dirt trapping part (4) is formed by an entirely or partly open hollow body each axially on the bottom and axially on the top, with a radially outer peripheral wall (40), wherein axially on the bottom, the nozzle bearing body (31) - in the assembled condition of the rotor (2) - forms a bottom (42) delimiting the interior of the rotor at least partly towards the bottom and with the hollow body, axially on the top, being closed by a separate dirt trapping part cover being permanently or detachably mounted.

10. Free-jet centrifuge according to any one of the claims 1 to 8, characterized in that the dirt trapping part (4) is formed by a cup-shaped hollow body axially open on the top, with a radially outer peripheral wall (40), with the hollow body, axially on the top, being closed by a separate dirt trapping part cover being permanently or detachably mounted.
11. Free-jet centrifuge according to any one of the claims 1 to 8, characterized in that the dirt trapping part (4) is formed by a bell-shaped hollow body being entirely or partly open axially on the bottom, with a radially outer peripheral wall (40), with the nozzle bearing body (31), axially on the bottom, forming - in the assembled condition of the rotor (2) - a bottom (42) at least partly delimiting the interior of the rotor towards the bottom.
12. Free-jet centrifuge according to any one of the claims 1 to 8, characterized in that the dirt trapping part (4) is formed by a can-shaped hollow body closed axially on the bottom and axially on the top, with a radially outer peripheral wall (40).
13. Free-jet centrifuge according to any one of the claims 9 to 12, characterized in that the hollow body forming the dirt trapping part (4) additionally comprises a radially inner tubular wall (43).
14. Free-jet centrifuge according to any one of the claims 1 to 13, characterized in that the interacting torque transmission means (6) of drive part (3) and dirt trapping part (4) of the rotor (2)

are arranged in its radially inner, axially upper area.

15. Free-jet centrifuge according to any one of the claims 1 to 14, characterized in that the interacting torque transmission means (6) of drive part (3) and dirt trapping part (4) of the rotor (2) are provided in its axially lower area.
16. Free-jet centrifuge according to any one of the claims 5 and 15, characterized in that the dirt trapping part (4) on the underside has a contour axially overreaching the arms of the drive part (3) and forming, with these arms, the interacting torque transmission means (6) of the drive part (3) and the dirt trapping part (4) of the rotor (2).
17. Free-jet centrifuge according to claim 16, characterized in that the contour of the underside of the dirt trapping part (4) is additionally designed as a latching connection axially engageable and disengageable with the arms of the drive part (3).
18. Free-jet centrifuge according to any one of the preceding claims, characterized in that the dirt trapping part (4) comprises in its interior radially or predominantly radially running guide and stiffener walls (48).
19. Free-jet centrifuge according to claim 18, characterized in that the radially inner end of the guide and stiffener walls (48) forms a part of the torque transmission means (6) on the side of the dirt trapping part, and that the interacting torque

transmission means (6) of the drive part (3) and the dirt trapping part (4) of the rotor (2), in its radially interior area, are provided extending over at least one part of the axial length of the tubular body (30).

20. Free-jet centrifuge according to any one of the claims 1 to 19, characterized in that the interacting torque transmission means (6) of the drive part (3) and the dirt trapping part (4) are formed by axially combinable and separable multi-edge contours or indentations or waviness or tongue-and-groove-arrangements, each seen in radial direction, with or without undercut (60).
21. Free-jet centrifuge according to claim 20, characterized in that the interacting torque transmission means (6) of the drive part (3) and the dirt trapping part (4) are designed in a self-finding manner with lead-in slopes and/or lead-in points (61).
22. Free-jet centrifuge according to any one of the claims 9 to 21, characterized in that the hollow body forming the dirt trapping part (4) of the rotor (2) is a one-piece plastic injection molded part.
23. Free-jet centrifuge according to any one of the claims 9 to 21, characterized in that the hollow body forming the dirt trapping part (4) of the rotor (2) can be a plastic component joined together, preferably welded, of two injection molded parts.
24. Free-jet centrifuge according to any one of the preceding claims, characterized in that at least one

separately attached or single-piece integrally molded seal (62) or sealing contour is provided each in the contact areas between the drive part (3) and the dirt trapping part (4) of the rotor (2).

25. Free-jet centrifuge according to any one of the preceding claims, characterized in that, for the generation of the two partial lubricating oil flows, the lubricating oil flow being fed to the centrifuge (1) can be divided in the centrifuge (1) into two volume-adjusted partial flows, advantageously fed via two defined throttle points (34, 37), with the one partial flow being feedable under pressure to the drive part (3) and its recoil nozzles (34) and the other partial flow being feedable without pressure to the dirt trapping part (4) via at least one inlet (44).
26. Free-jet centrifuge according to claim 25, characterized in that both throttle points (34, 37) are provided in the drive part (3) of the centrifuge.
27. Free-jet centrifuge according to claim 26, characterized in that, of the two throttle points (34, 37), the one through which the partial lubricating oil flow can be fed to the dirt trapping part (4) is formed by at least one throttle bore or by an upper bearing (52) of the drive part (3) with a defined gap measure.
28. Free-jet centrifuge according to claim 16, characterized in that the partial flow fed to the drive part (3) is larger by volume than the partial flow fed to the dirt trapping part (4).



29. Free-jet centrifuge according to any one of the claims 6 to 8, characterized in that the supply of the lubricating oil to the centrifuge (1), for the drive part (3) as well as for the dirt trapping part (4), is provided axially from the bottom through the axis (5) or the lower axis stub (5').
30. Free-jet centrifuge according to any one of the claims 6 to 8, characterized in that the supply of lubricating oil to the centrifuge (1) will be provided, for the drive part (3), axially from the bottom through the axis (5) or the lower axis stub (5'), and for the dirt trapping part (4), separately thereof axially from the top.
31. Free-jet centrifuge according to any one of the preceding claims, characterized in that the partial lubricating oil flow for the dirt trapping part (4) can be supplied into it axially on the top, radially from the inside to the outside, in the form of a revolving fan jet or several individual jets distributed in circumferential direction through at least one correspondingly formed inlet (44).
32. Free-jet centrifuge according to claim 31, characterized in that at least one built-in part (41') is provided axially on the top in the dirt trapping part (4) for the uniform distribution of the inflowing lubricating oil in circumferential direction of the dirt trapping part (4).
33. Free-jet centrifuge according to any one of the claims 25 to 32, characterized in that at least one oil outlet (47) is provided axially on the bottom.



and radially inside on the rotor (2), said outlet having a cross-section which is larger than the cross-section of the inlet (44).

34. Free-jet centrifuge according to claim 33, characterized in that radially outside from the outlet (47), a deflecting rib arrangement (17) or a shielding disk (17') will be provided, on the underside of the rotor (2) and/or on the upper side of a centrifugal housing area (10') located under the rotor (2), which forces the pressureless partial lubricating oil flow coming from the outlet (47) to a guided course separated from the rotor (2) and from the oil jet coming out of every recoil nozzle (34).
35. Free-jet centrifuge according to claim 6 or 7, characterized in that the drive part (3) is secured against removal from the axis (5) towards the top by means of a safety (38) latched or clamped or screwed on the axis (5) or provided or supported on the cover (14).
36. Free-jet centrifuge according to any one of the claims 1 to 35, characterized in that the dirt trapping part (4) axially on the upper side and the cover (14) axially on the underside each have a stop face (45, 15) which in their interaction prevent or restrict the axial mobility of the dirt trapping part (4) relative to the drive part (3) when the cover (14) is placed on.
37. Free-jet centrifuge according to claim 6 or 7, characterized in that a stop body (38) - detachably connected axially at the top with the axis (5),

projecting above the axis (5) radially towards the outside - will have axially on the underside, and the dirt trapping part (4) will have axially on the upper side, one stop face each which in their interaction prevent or restrict the axial mobility of the dirt trapping part (4) relative to the drive part (3) during operation of the centrifuge (1).

38. Free-jet centrifuge according to the claims 35 and 37, characterized in that the safety and the stop body are combined to or in one component (38).
39. Free-jet centrifuge according to any one of the claims 1 to 35, characterized in that between the axial upper side of the dirt trapping part (4) and the axial underside of the cover (14), an additional bearing (15') in the form of a plain axial bearing is provided which prevents or restricts the axial mobility of the dirt trapping part (4) relative to the drive part (3) with the cover (14) placed on, and which takes up the forces of the dirt trapping part (4) which are directed axially towards the top.
40. Free-jet centrifuge according to any one of the preceding claims, characterized in that the dirt trapping part (4) axially on the upper side and the cover (14) axially on the underside comprise coupling means (19, 49) which are engageable and disengageable with each other, preferably latching means, which do not contact each other when the cover (14) is placed on and which, when the cover (14) is removed, will take along the dirt trapping part (4) axially towards the top, by separating it from the drive part (3).

41. Free-jet centrifuge according to any one of the preceding claims, characterized in that the drive part (3) and the dirt trapping part (4), in view of their parts interacting with the housing (10), will comprise a forming and dimensioning which will allow the installation of the drive unit (3) and the dirt trapping part (4) into existing centrifuges, hitherto provided with a conventional rotor.
42. Free-jet centrifuge according to any one of the claims 22 to 41, characterized in that the dirt trapping part (4) is free of metal and that the plastic forming the dirt trapping part (4) is unmixed, preferably a recycling plastic, and combustible without pollutant emissions or with low emissions.
43. Free-jet centrifuge according to any one of the preceding claims, characterized in that a minimum pressure starting valve (7) is arranged in a channel (53) feeding the lubricating oil to the centrifuge (1), said valve only releasing the oil supply to the centrifuge (1) after a definable oil pressure on the inlet side is exceeded.
44. Free-jet centrifuge according to any one of the preceding claims, characterized in that it is part of a module comprising at least one additional auxiliary unit - especially an oil filter and/or an oil cooler - of the internal combustion engine, said part being flangeable to the internal combustion engine by making the necessary flow connections.
45. Free-jet centrifuge according to claim 44, characterized in that the centrifuge (1) is operated

in a bypass flow to the oil filter lying in the main flow and that the bypass flow flowing through the centrifuge (1) comprises a maximum of 10%, preferably 5%, of the volume flow of the main flow.

46. Free-jet centrifuge according to claim 1, characterized in that the centrifuge (1) for the rotatable bearing of the rotor (2) comprises a central axis (5) which is hollow at least over one part of its length and forms a section (53) of the oil feed channel (18); that, in this section (53), a valve body (70) of a minimum pressure valve (7) is axially movably provided, said valve body (70) being pre-loaded in closing direction; that the valve body (70) protrudes from the axis (5) and a sealing head (71) of the valve body (70) is located outside of the axis (5); and that a valve seat (75) interacting with the sealing head (71) is formed on an axis-carrying centrifuge housing part (10') through which the oil feed channel (18) is running.
47. Free-jet centrifuge according to claim 46, characterized in that the valve body (70) is composed of several individual parts which are connected with each other, in particular, the sealing head (71), a stem (72) and a stem guide end piece (73).
48. Free-jet centrifuge according to claim 46, characterized in that the valve body (70) is composed of a single piece.
49. Free-jet centrifuge according to claim 1, characterized in that the drive part (3) comprises a central tubular body (30) which - by forming a ring

channel (30') for the oil supply - surrounds at a distance a central axis (5) on which the drive part (3) is rotatably positioned and that - in an upper end area of the ring channel (30') between an upper bearing (52) of the drive part (3) and an oil inlet (44) of the dirt trapping part (4) - a shielding ring (55) is provided which is tied either radially inside to the axis (5) or radially outside to the tubular body (30).

50. Free-jet centrifuge according to claim 1, characterized in that the centrifuge (1) comprises a central hollow axis (5) whose hollow interior (53) forms - in a first axial area - a section of the oil feed channel (18) and - in a second axial area - an oil outlet channel (13'); that in the hollow interior (53) of the axis (5), a first valve body (70) - preloaded in closing direction, interacting with a valve seat (75) - of a minimum pressure valve (7) is provided axially movably to a limited extent; that an oil passage (74) is formed in the valve body (70); and that a second valve body (70') - preloaded in closing direction - of an overpressure shutdown valve (7') interacts with the oil passage (74).
51. Free-jet centrifuge according to claim 50, characterized in that preloading of the first valve body (70) and of the second valve body (70') in their closing direction is effected by a single spring (76).
52. Free-jet centrifuge according to claim 50, characterized in that preloading of the first valve body (70) and of the second valve body (70') in

their closing direction is effected by their own spring (76, 76') each.

53. Free-jet centrifuge according to claim 1, characterized in that the centrifuge (1) comprises a central hollow axis (5) whose hollow interior (53), in a first axial area (53.1), forms a section of the oil feed channel (18) for the drive part (3) and for the dirt trapping part (4) and, in a second axial area (53.2), a section of the oil feed channel only for the dirt trapping part (4); that, in the hollow interior (53) of the axis (5), a valve body (70) - preloaded in closing direction, interacting with a valve seat (75) - of a minimum pressure valve (7) is provided being axially movable to a limited extent; and that, in the valve body (70), an oil passage (74) with a defined cross-section is formed whose orifice on the sealing seat side is located radially outside and downstream of the sealing contour of the valve body (70) interacting with the sealing seat (75).

54. Free-jet centrifuge according to claim 1, characterized in that the centrifuge (1) comprises a central hollow axis (5) whose hollow interior (53), in a first axial area (53.1), forms a section of the oil feed channel (18) for the drive part (3) and for the dirt trapping part (4) and, in a second axial area (53.2), a section of the oil feed channel only for the dirt trapping part (4); that, in the hollow interior (53) of the axis (5), a valve body (70) - preloaded in closing direction, interacting with a valve seat (75) - of a minimum pressure valve (7) is provided being axially movable to a limited extent; and that, between the outer circumference of the

valve body (70) and the inner circumference of the hollow axis (53), an oil passage with a defined cross-section is formed whose orifice on the sealing seat side is located radially outside and downstream of the sealing contour of the valve body (70) interacting with the sealing seat (75).

55. Free-jet centrifuge according to claim 1, characterized in that the bottom (42) of the dirt trapping part (4) is provided with openings (42.2) distributed in radial and circumferential direction and under the perforated bottom (42) in an axial distance from it and above the nozzles (34), a closed shielding disk (32.1) is provided which is part of the drive part (3), or that in the dirt trapping part (4) above its closed bottom (42), an intermediate bottom is provided which has openings distributed in radial and circumferential direction.
56. Free-jet centrifuge according to claim 55, characterized in that the bottom (42) or the intermediate bottom provided with the openings (42.2) is designed as a perforated plate or a screen plate.
57. Free-jet centrifuge according to claim 55 or 56, characterized in that a layer of material (42.3), preferably of fleece or fabric, is placed onto the bottom (42) or the intermediate bottom, covering up its openings (42.2) in an oil-permeable manner.
58. Free-jet centrifuge according to claim 1, characterized in that two shielding disks (17', 17'') are provided one over the other, radially outside of a clean oil outlet (47) of the dirt



trapping part (4), on the upper side of a centrifuge housing part (10') located under the rotor (2), with the pressureless partial lubricating oil flow coming from the clean oil outlet (47) flowing off between the lower shielding disk (17') and the centrifuge housing part (10') located thereunder, and with the fast flowing partial lubricating oil flow - exiting from the recoil nozzles (34) of the drive part (3) - being discharged between the lower shielding disk (17') and the upper shielding disk (17'').

59. Free-jet centrifuge according to claim 1, characterized in that a central axis (5) serving for the rotatable bearing of the rotor (2) is designed as one single piece with a part of the centrifuge housing (10') located under the rotor (2).
60. Free-jet centrifuge according to claim 1, characterized in that at least one bearing sleeve (51') is set onto the outside of a central axis (5) serving for the rotatable bearing of the rotor (2), the sleeve being of a material forming a favorable sliding fit with at least one bearing bush (21) in the rotor (2).
61. Free-jet centrifuge according to claim 60, characterized in that the bearing sleeve (51'), after being set down onto the axis (5), will be finished on its outer circumference by grinding.
62. Free-jet centrifuge according to claim 1, characterized in that the drive part (3) of the rotor (2) is designed with a central tubular body (30) through which the lubricating oil to be cleaned can be fed to the dirt trapping part (4); that, in

an upper end area of the tubular body (30), at least one opening running in radial direction is provided as an oil inlet (44) to the dirt trapping part (4); that - by forming an annular gap space on the outer circumference of the upper end area of the tubular body (30) - a sleeve-form collar (39) is provided which is closed axially on the bottom and radially on the outside and opened axially on the top; and that the oil inlet (44) discharges into the lower part of the annular gap space.

63. Free-jet centrifuge according to claim 1, characterized in that the drive part (3) of the rotor (2) is designed with a central tubular body (30) which forms a shaft for the rotatable bearing of the rotor (2); that the tubular body (30) is provided on bearings on the bottom and the top of housing parts (10', 14) of the centrifuge (1); that a friction bearing is provided as the lower bearing (51) which is formed by a bearing bush (51.1) inserted in the housing part (10') located under the rotor (2) and a bearing part (51.2) inserted into the bearing bush (51.1) provided on the bottom end of the tubular body (30); and that - as an upper bearing (52) - a rolling bearing is provided which is arranged between the upper end of the tubular body (30) and a housing part, especially cover (14), which is located above the rotor (2).

64. Free-jet centrifuge according to claim 63, characterized in that the tubular body (30) forming the shaft for the rotatable bearing of the rotor (2) is provided with axial clearance and that the size of a lower front face of the tubular body (30) or of the bearing part (51.2) is dimensioned subject to

the oil pressure prevailing during operation of the centrifuge (1) such that an axial force caused by the oil pressure, acting on the rotor (2) towards the top will be essentially equivalent to the axial weight force of the rotor (2) acting towards the bottom.

65. Free-jet centrifuge according to claim 1, characterized in that the drive part (3) of the rotor (2) is designed with a central tubular body (30) which forms a shaft for the rotatable bearing of the rotor (2), and that the tubular body (30) is run on bearings only on the bottom of a housing part (10') of the centrifuge (1) located under the rotor (2), by means of two bearings (51, 52) axially spaced from each other.
66. Free-jet centrifuge according to claim 65, characterized in that the lower bearing (51) is provided as a friction bearing which is formed by a bearing bush (51.1) inserted into the housing part (10') located under the rotor (2) and by a bearing part (51.2) provided on the lower end of the tubular body (30) and inserted into the bearing bush (51.1); and that a rolling bearing is provided as an upper bearing (52) which, seen in radial direction, is arranged between the bearing part (51.2) of the tubular body (30) and the housing part (10') located under the rotor (2).
67. Free-jet centrifuge according to claim 1, characterized in that the centrifuge (1) is designed with a housing-stationary central axis (5), and the drive part (3) of the rotor (2) with a central tubular body (30) surrounding the axis (5) at a

distance; that - through a ring channel (30') between axis (5) and tubular body (30) - the lubricating oil to be cleaned can be fed to the dirt trapping part (4); and that - on the inner circumference of the tubular body (30) - ribs (39') running in axial direction are arranged, extending radially towards the inside into the annular gap space (30').

68. Free-jet centrifuge according to claim 1, characterized in that the centrifuge (1) is designed with a housing-stationary central axis (5), and the drive part (3) of the rotor (2) with a central tubular body (30) surrounding the axis (5) at a distance; that the lubricating oil can be fed to the centrifuge (1) through a hollow lower section (53) of the central axis (5); that - through a ring channel (30') between axis (5) and tubular body (30) - a partial flow forming the lubricating oil to be cleaned can be fed to the dirt trapping part (4); that a friction bearing bush (51') provided at the lower end of the tubular body (30) is run on bearings on the hollow lower section (53) of the central axis (5) and that the upwardly directed front face of the bearing bush (51') is designed as a valve seat (75) for a valve body (70) - axially movable in the tubular body (30), preloaded in closing direction - of a minimum pressure valve (7).

69. Free-jet centrifuge according to claim 1, characterized in that the centrifuge (1) is designed with a housing-stationary central axis (5), and the drive part (3) of the rotor (2) with a central tubular body (30) surrounding the axis at a distance; that the lubricating oil can be fed to the

centrifuge (1) through a hollow lower section (53.1) of the central axis (5); that - through a ring channel (30') between axis (5) and tubular body (30) - a partial flow forming the lubricating oil to be cleaned can be fed to the dirt trapping part (4); that a friction bearing bush (51') provided at the lower end of the tubular body (30) is run on bearings on the hollow lower section of the central axis (5); that the axis (5) at the level of the upper end of the bearing bush (51') comprises a radially outwardly projecting step (57); and that the upwardly directed front faces of the bearing bush (51') and of the step (57) are jointly designed as a valve seat (75) for a valve body (70) - axially movable in the tubular body (30), preloaded in closing direction - of a minimum pressure valve (7), with the valve body (70) in its closed position sealingly covering a bearing gap (56) between the axis (5) and the bearing bush (51')..

70. Free-jet centrifuge according to claim 68 or 69, characterized in that the valve body (70) is hollow and carried on the axis (5); that the axis (5) - in its area carrying the valve body (70) - comprises a section (5.1) of a larger outer diameter and above that a section (5.2) of a smaller outer diameter, and that the valve body (70) on its inner circumference comprises a sealing contour or a seal (77) which seals off against the section (5.1) of the larger outer diameter and has a radial distance to the section (5.2) of the smaller outer diameter.

71. Free-jet centrifuge according to claim 1, characterized in that the means provided or applied in the centrifuge (1) - which, in the operation of

the centrifuge (1), serve to prevent or restrict the axial mobility of the dirt trapping part (4) relative to the drive part (3) and which are detachable when the cover (14) is removed - are formed by latching tongues (8) with latching noses (80) arranged on the dirt trapping part (4) or on the drive part (3) which are interacting with latching recesses (83) provided on the drive part (3) or on the dirt trapping part (4).

72. Free-jet centrifuge according to claim 71, characterized in that the latching tongues (8) are provided on the top and radially inside, as well as downwardly directed on the dirt trapping part (4) and the latching recesses (83) being provided on the top and radially inside on the drive part (3).
73. Free-jet centrifuge according to claim 71 or 72, characterized in that the latching tongues (8) are swiveling about a swivel axis (81); that the latching tongues (8) are formed with an upwardly directed and protruding activation end (82); and that by swiveling the activation end (82) radially towards the inside, the respectively associated latching tongue (8) is swiveling with its latching nose (80) radially outwardly and thus disengageable with its latching recess (83).
74. Free-jet centrifuge according to any one of the claims 46 to 73, characterized in that the drive part (3) consists of a metal, preferably of a light metal, such as aluminum or magnesium, and that the dirt trapping part (4) consists of a plastic, preferably a thermoplastic, such as polyamide or polyethylene.

75. Free-jet centrifuge according to claim 1, characterized in that in an upper area of the dirt trapping part (4) from its center, upon rotation of the rotor (2) in radial direction, outwardly pointing flexible hose arms (44.1) or articulated tubular arms are provided as an oil inlet (44).
76. Free-jet centrifuge according to claim 1, characterized in that in an upper area of the dirt trapping part (4), from its center, outwardly extending rigid tubular arms are provided, with holes as an oil inlet (44) provided over their length.
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